

AMENDMENT TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in this application:

1. (Currently Amended) A food product dispenser, comprising:

a ~~fluid~~ water source;

at least two ~~fluid~~ water nozzles;

a flowable food component source;

a food component nozzle; and

a delivery device connecting the ~~fluid~~ water source to the fluid nozzle and the component source to the component nozzle for delivering ~~fluid~~ water and a food component from the respective source to the respective nozzles, wherein the delivery device and nozzles are configured such that the ~~fluid~~ water and component are ejected from the ~~fluid~~ water and component nozzles, respectively, in at least two ~~fluid~~ water and at least one component streams, respectively, which intersect each other at an intersection location at which the streams mix substantially in a state of free fall;

wherein the delivery device and nozzles are configured for ejecting the streams in a configuration such that the streams mix by collision to produce a food product which is directed to a dispensing location; wherein the nozzles comprise ejection orifices, with the ejection orifices of the component nozzle being disposed closer to a substantially vertical axis that extends through the intersection location than the orifices of one or both of the ~~fluid~~ water nozzles to cause mixing with energy sufficient to form a froth on the food product, and wherein the water streams are ejected at a linear velocity which is greater than the linear velocity of the food component stream.

2. (Cancelled)

3. (Original) The dispenser of claim 1, wherein the streams at the intersection location are unsupported by any solid structure and mix prior to filling a container.

4. (Original) The dispenser of claim 1, wherein the fluid stream is a jet, and the streams have reduced speeds downstream of the intersection location.

5. (Original) The dispenser of claim 1, further comprising a dispensing bay configured for receiving a container at the dispensing location for receiving the food product therein.

6. (Original) The dispenser of claim 1, wherein the food product is a beverage.

7. (Currently Amended) The dispenser of claim 1, wherein the ~~fluid is water and the~~ component is a liquid beverage concentrate.

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Previously Presented) The dispenser of claim 1, wherein the component nozzle is configured for directing the component stream substantially along the substantially vertical axis.

12. (Previously Presented) The dispenser of claim 1, wherein the first and second streams exiting the orifices form an angle of between about 20 and 60 degrees and provide a high turbulent flow at the intersection location to produce a uniformly mixed product.

13. (Original) The dispenser of claim 12, wherein the streams delivered through each fluid nozzle orifice has a flow rate of between about 5 and 25 ml/s and a linear velocity of between about 10 and 2000 cm/s, and the component is a liquid concentrate having a viscosity between about 1 and 5000 cP.

14. (Original) The dispenser of claim 13, wherein the streams delivered through each fluid nozzle orifice has a flow rate of between about 7 and 15 ml/s and a linear velocity of between about 650 and 1250 cm/s, and the component is a liquid concentrate having a viscosity between about 300 and 1500 cP.

15. (Previously Presented) The dispenser of claim 1, wherein the fluid nozzle orifice has a diameter of between about 0.5 to 1.5 mm, and the component nozzle has a diameter of between about 1 and 3.5 mm.

16. (Previously Presented) The dispenser of claim 1, wherein the fluid nozzles are spaced from the intersection location at a distance of between about 1 and 200 mm.

17. (Currently Amended) The dispenser of claim 1, wherein the delivery device comprises:

a ~~fluid~~ pump configured for pumping the ~~fluid~~ water from the ~~fluid~~ water source to the ~~fluid~~ water nozzle at a sufficient flow rate for producing the ~~fluid~~ water stream; and

a component pump configured for pumping the component from the component source to the component nozzle at a sufficient flow rate for producing the component stream.

18. (Currently Amended) The dispenser of claim 17, wherein at least one of the pumps is configured to deliver pulses of the ~~fluid~~ water or component.

19. (Original) The dispenser of claim 18, wherein the pumps are peristaltic pumps.

20. (Original) The dispenser of claim 17, further comprising a controller associated with the pumps for controlling the flow rates.

21. (Original) The dispenser of claim 1, wherein:
the component source comprises a plurality of component sources;
the component nozzle comprises a plurality of component nozzles for dispensing different components from the component sources to the intersection location; and
the delivery device is configured for selectively activating and deactivating the flow from the component nozzles for dispensing a selected combination of one or more of the components to the intersection location depending on the type of food product selected for dispensing.

22. (Original) The dispenser of claim 21, further comprising a controller configured for controlling the delivery device for sequentially dispensing the components to the intersection location.

23. (Original) The dispenser of claim 21, further comprising a controller configured for controlling the delivery device for substantially simultaneously dispensing the components to the intersection location.

24. (Currently Amended) The dispenser of claim 1, further comprising a thermal exchange unit configured for heating or cooling the ~~fluid~~ water to be dispensed.

25. (Currently Amended) A method of preparing a food product, which comprises ejecting at least two streams of a ~~fluid~~ water and at least one stream of a food component towards an intersection location substantially immediately after which the streams are substantially in a state of free fall, such that the streams mix by collision and fall into a container to prepare a food product therein, wherein the food component is ejected at a point that is closer to a substantially vertical axis passing through the intersection point than the point or points where one or both of the ~~fluid~~ water streams are ejected to cause mixing with energy sufficient to form a froth on the food product, and wherein the water streams are ejected at a linear velocity which is greater than the linear velocity of the food component stream.

26. (Original) The method of claim 25, wherein the velocity of the streams is reduced downstream of the intersection location.

27. (Cancelled)

28. (Previously Presented) The method of claim 25, wherein the component stream comprises a plurality of component streams directed toward the intersection location, the component streams comprising different components.

29. (Original) The method of claim 28, which further comprises:
entering into the dispenser a selection of a type of food product to be dispensed;
and

selectively activating and deactivating the different component streams for dispensing a selected combination of one or more of the components to the intersection location depending on the type of food product selected.

30. (Original) The method of claim 28, wherein the different components in the combination are dispensed sequentially.

31. (Original) The method of claim 28, wherein the different components are dispensed substantially simultaneously.

32. (Previously Presented) The method of claim 25, wherein the streams are ejected from the dispenser at an angle with respect to each other of between about 1 to 80 degrees.

33. (Original) The method of claim 25, wherein the flow rate of the fluid streams have a flow rate of between about 5 and 25 ml/s and a linear velocity of between about 10 and 2000 cm/s, and the component is a liquid concentrate having a viscosity between about 1 and 5000 cP.

34. (Original) The dispenser of claim 33, wherein the streams delivered through each fluid nozzle orifice has a flow rate of between about 7 and 15 ml/s and a linear velocity of between about 650 and 1250 cm/s, and the component is a liquid concentrate having a viscosity between about 300 and 1500 cP.

35. (Original) The method of claim 25, wherein the food product is a beverage.

36. (Previously Presented) The method of claim 25, wherein the streams are ejected from the dispenser at an angle with respect to each other of between about 20 and 60 degrees.

37. (Previously Presented) The method of claim 25, wherein the streams are ejected from the dispenser at an angle with respect to each other of between about 25 and 35 degrees.

38. (Previously Presented) The method of claim 25, wherein the streams are ejected in a manner to form a fan-shaped spray or shower cloud in the direction of the container bottom.

39. (Previously Presented) The dispenser of claim 1, wherein the ejection orifices eject the streams in a manner to form a fan-shaped spray or shower cloud in the direction of the container bottom.